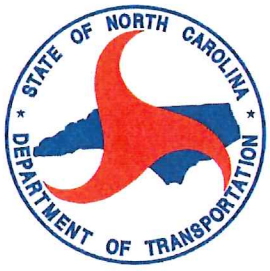
Navigation Study

IMPROVEMENTS TO US 17 BUSINESS
FROM CHURCH STREET TO NC 37

INCLUDING THE REPLACEMENT OF BRIDGE NO. 8
OVER THE PERQUIMANS RIVER

HERTFORD AND WINFALL
PERQUIMANS COUNTY, NORTH CAROLINA

TIP R-4467
WBS ELEMENT NO. 35748



THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Project Development and Environmental Analysis Branch

June 2017

TABLE OF CONTENTS

1.0 PURPOSE AND OBJECTIVE 1
2.0 APPROACH AND METHODOLOGY 1
3.0 FINDINGS 2
4.0 SUMMARY AND CONCLUSION 8

Appendix A. Survey Questionnaire
Appendix B. Survey Responses
Appendix C. Zoning Maps
Appendix D. Bridge Tender Logs
Appendix E. Responses to USCG Questions
Appendix F. Current Preliminary Design Plans

LIST OF FIGURES

Figure 1 – Location Map
Figure 2-2b – Aerial of Study Area
Figure 3 – Waterfront Properties for Mailed Survey

1.0 PURPOSE AND OBJECTIVE

The North Carolina Department of Transportation (NCDOT) proposes to replace the existing US 17 swing bridge, located at mile 12.0 on the Perquimans River, and the adjacent causeway (Figure 1). The purpose of this navigation evaluation is to identify the existing constraints to navigation for vessels which may reasonably navigate the waterway in the study area, and to provide a basis for establishing a recommendation for vertical and horizontal clearances for the proposed bridge replacement.

2.0 APPROACH AND METHODOLOGY

After preliminary review of aerial photography and navigation maps of the navigable waterway and its reaches, the following assumptions were considered to develop the proposed scope of work and methodology for this navigation study. These assumptions were confirmed to be reasonable during a scoping meeting with the U.S. Coast Guard (USCG) and NCDOT:

- The limits of the study area are those navigable waters between the US 17 Bypass fixed bridge and the upstream railroad bridge (Figure 2).
- The anticipated vessel traffic traveling the waterway is limited to that which can pass under the US 17 Bypass fixed bridge, which is sufficient for the future vessel traffic. Therefore, the proposed recommended vertical and horizontal clearances for the swing bridge replacement will not need to be greater than the US 17 Bypass fixed bridge mentioned above.
- There are no known plans for redevelopment in the study area that would require greater clearance than the US 17 Bypass fixed bridge.

The methodology employed, intended to evaluate the existing boat traffic that passes through the swing bridge and that which is reasonably, likely to continue to occur in the future. The assessment was conducted relative to vessel type, size and height, as well as the limitations of channel depth and height restriction of the US 17 Bypass fixed bridge which is seaward of the proposed replacement bridge.

A desktop review of the study area using readily available resources such as aerial photography and other various resources was conducted. These resources included the following:

- NOAA Nautical Chart 12205, 35th Ed., Feb 2017
- U.S. Coastal Pilot 48th Edition 2016
- Notice to Mariners
- Bridge Tender logs

- Hertford Zoning Map
- CAMA CORE Land Use Plan
- Hertford Marina Planning Documents 2009
- GIS-level aerial mapping

Field reconnaissance, by boat, was conducted, which consisted of a visual review of the shoreline and boat facilities within the study area. This survey of the study area identified and confirmed the location and type of many large vessels and sailboats utilizing the waterway within the study area.

Personal interviews were conducted with readily available representatives who operate the existing bridge as well as representatives with local marine knowledge of boating activity in the study area. Interviews were conducted with the following individuals:

- Mayor of Hertford
- Hertford Town Manager
- Buddy Lawrence (Albemarle Plantation Marina)
- Bill Curtright (bridge tender)
- Owner representative of Stokely-Holland Marine Construction, (Hertford)

As agreed to with the U.S. Coast Guard, the NCDOT mailed and emailed a boat survey questionnaire (Appendix A) to the public to solicit feedback for the navigational needs in the study area. The survey form was accepted as reasonable by USCG. The survey was mailed to all 42 waterfront property owners in the study area (Figure 3), and to the 10 marinas on the Albemarle Loop, of which the Hertford Marina is included. It was also sent to the Town Manager, Chamber of Commerce and the Perquimans Weekly newspaper for publishing, and was posted on the project website. A total of 12 responses were received. Responses received are attached as Appendix B.

3.0 FINDINGS

The following summarizes the findings from the documentation review, field reconnaissance, personal interviews and mail survey.

NOAA Nautical Chart 12205, 35th Ed., Feb 2017

- Currently, the swing bridge has a horizontal clearance of 55' at the north opening and 60' at the south opening. The vertical clearance is 7' in the closed position and unlimited in the open position.

- The US 17 Bypass fixed bridge is located approximately 0.7 miles seaward (east) of the subject bridge. This fixed bridge has a horizontal clearance of 55' and a vertical clearance of 33.'
- Two channel markers ("9" and "11") are located between the two bridges.
- Upstream of the subject bridge exists a railroad bridge which has a horizontal clearance of 22' and a vertical clearance of 3.'
- The approximate average water depth in the study area is 11' to 14' LWD, with the controlling water depth being 9' at the US 17 Bypass bridge, (Low Water Datum is 0.5' below mean sea level).
- The water depth is not significantly affected by tide. Water depth and current is affected more by rainfall runoff/flood flow and wind direction. During flood flow the waterway can experience higher stages in elevation. Wind from the north and northwest can cause a lower water elevation with a stronger current in the water. Wind from the south and southeast can cause a higher water elevation and less of a current.

U.S. Coastal Pilot 48th Edition 2016

The following is from is summarized in this document:

> "Hertford, on the southwest bank of Perquimans River, has rail connections with the Class I Railway and highway connections with U.S. Route 17 to Edenton and Elizabeth City. Oil is barged into Hertford to an oil pier on the south side of the river just above the highway swing bridge. The river water is fresh at Hertford. Above Hertford the river is narrow and crooked, but has fairly good depths for about 8 miles to a point near Goodwin Creek. Navigation is restricted to very small boats, about a mile above the highway swing bridge, by the railroad bridge, which has a 22-foot fixed span with a clearance of 3 feet."

Notice to Mariners

A review of the 10-17 1st Weekly Edition of Notice to Mariners report (March) revealed that the subject bridge was closed for repair. No other significant items have been noted relative to the study area since this report, other than the report announces that the US 17 bridge is being replaced.

Bridge Tender logs

The bridge is operated from October 1- March 31 from 10 am - 10 pm, and from April 1 – September 30, on demand, from 8 am - midnight (252-426-7241). While there is recognition that the volume and type of vessels on the waterway can vary with the seasons of the year, the study area is relatively small with only one way in and one way out, and there are no intensive marine

commercial facilities in the study area to generate a lot of vessel traffic. Most of the waterfront properties are single family residential lots. Therefore, a review of the bridge tender logs from January 2016 to February 2017 is anticipated to be typical of the waterway activity, (Appendix D). The bridge tender logs revealed the following information regarding the types of vessels that were observed on the waterway:

Eighty five percent (85%) of the total vessels requiring bridge openings were recreational vessels. They consisted of the following types of vessels:

- cuddy cabins
- center consoles
- cabin cruisers
- houseboats
- motor yachts
- pontoon boats
- sailboats

Of the recreational vessel traffic, only 2 sailboats were observed during this period. One was a local vessel and one was a transient vessel. Approximately 18% of the total vessels observed consisted of transient traffic which utilized the Hertford marina docking facility. Approximately 65% of the total vessels observed consisted of local traffic generated either from the single family docks in the study area or from the Hertford boat ramp. The Town of Hertford anticipates that the amount of traffic to their facility will increase, since the marina facility is relatively new.

Fifteen percent (15%) of the total vessels requiring bridge openings were commercial vessels. These consisted of the following types of vessels:

- contractor tugs and barges
- recreational boats outfitted for commercial fishing

No emergency or public safety vessels were observed on the waterway.

Hertford Zoning Map and CAMA CORE Land Use Plan

The Hertford zoning and existing and future land use plans reflected that only one commercial waterfront parcel exists in Herford, which is immediately adjacent to the railroad track. In Winfall, there were approximately 4 waterfront commercial parcels (Appendix C). The mapping did not reflect any waterfront industrial properties in the study area.

Hertford Marina Planning Documents 2009

A review of documentation prepared for the Town regarding the conceptual plans for the marina development and expansion were reviewed. While these conceptual plans have been developed,

interviews with the Town have not revealed any imminent plans on moving forward with the expansion.

Field Reconnaissance

Field reconnaissance of the study area was conducted on March 2, 2017. A review of land uses and watercraft in the area was noted to gain a better understanding of the size/type of vessels that likely pass through the subject bridge. The shoreline within the study area consists of predominantly single family residential properties with single family docks for recreational vessels. One boat ramp (Hertford) exists within the study area, and no marine commercial or industrial facilities on the waterfront in the study area other than the Hertford Marina docking facility.

Since this survey was completed in February, and not in the boating season for this geographic area, many recreational boaters did not have their vessels in the water or on their lifts/docks. However, supplementing the field reconnaissance with personal interviews, a review of the bridge tender logs, and mailed survey responses, provides an understanding of vessel traffic on the waterway.

There were no boats or boat trailers present on the day of the assessment, at the New Hope Wildlife Resources Boat Ramp on Boat Ramp Road in Perquimans County, NC. However, along the drive, roughly 10 miles outside of Hertford, a mix of vessels in residences' yards were observed. The vessels consisted of boats such as 16' skiffs, 24'-26' Center Console T-Tops and 35'-40' commercial fishing boats.

The Herford Marina has docking facilities that can accommodate one to two 50' vessels at a time, as well as 7 additional slips for smaller vessels. Many of the larger boats come in as part of a boat trail known as the Albemarle Loop which connects boaters from the Albemarle Sound to more remote waterways in the Albemarle Sound region. The Albemarle Loop consists of ten (10) marinas that offer free 48 hour stays similar to the Hertford Town Marina. The marina is free for the first 48 hours stay and then charge $1.75 per foot of boat per day. There are also weekly and monthly rates available for permanent seasonal slips.

Generally, there are a wide variety of vessels operating in the study area, and at mid-tide there is approximately 6' of vertical clearance under the existing bridge. Many smaller fishing vessels with T-Tops, require for the existing bridge to be opened.

Personal Interviews

- Buddy Lawrence at the Albemarle Plantation Marina (252) 426-4653, was interviewed. This 160 slip facility is part of the Albemarle Loop. Most of the boats at this facility are sailboats and cruisers up to 60' in length. He did not think many of his boaters go up to

Hertford. He recommended that Bobby Lane, (a commercial fisherman and who owns Capt. Bob's BBQ and Fish Restaurant (252) 426-1811) be interviewed. Attempts to reach this gentleman were unsuccessful.

- Thomas Stanton, was interviewed. According to Mr. Santon, there have been no known vessel collisions with the bridge. Mr. Stanton believes the existing horizontal clearance is sufficient for the existing vessel traffic. The commercial traffic is small fishing boats, many of which can clear the bridge. The 25' vessels require the bridge to be open because of the net reels. He indicated that if the bridge was raised to 20' most of the vessel traffic could clear the bridge. There is no significant current that adversely affects navigation.
- Another bridge tender at the site indicated that some trawler yachts and cruising yachts (50' range) use the facilities at the town marina for an overnight stay. The marina is free for the first 48 hours, so many of the larger boats come to use the septic and electric facilities provided at the marina.
- A few of the NCDOT workers that were resurfacing the existing bridge deck are local fishermen to the Town of Hertford. They indicated that there are many commercial fishing boats that currently use the town marina to launch their boats. Many of the commercial fishing boats have large reels and net rigs on them that require opening the existing swing bridge.
- An owner's representative of Stokely-Holland Marine Construction, Hertford, NC (252-264-2090) was interviewed. This conversation revealed that the area upstream of the subject bridge is known for good fishing (deep hole). Most of the traffic is small recreational boats. Commercial traffic is limited to marine contractors pushing small barges to local waterfront properties for various construction projects. It was indicated that the river current is manageable, with no real concerns for navigation. Although it was stated that it would be nice if horizontal clearance was a little wider, and some additional aids to navigation were installed.
- One person interviewed indicated that the largest vessel that accesses the study area may be a tug and barge operated by Riddick Marine (marine construction). Attempts to reach a representative were unsuccessful.
- Timothy A. Dewald of Timmy's Mobile Marine (252-426-5837) was interviewed. This is marine repair facility at 160 Creek Dr. on the north shore of Perquimans River, between the existing swing bridge and the US 17 fixed bridge. This facility services small vessels with outboard motors. Mr. Dewald did not believe there were any significant navigation concerns with the existing or proposed bridge replacement.

- A representative at a used car/boat dealer (A&B Motorsports) had a 21' Cuddy Cabin vessel for sale. This representative at the dealership stated that he personally owned a 41' offshore fishing boat, and that he uses the Hertford Marina boat ramp to launch his boat. He also indicated that another boat ramp was being built on the east side of the Rt. 17 Bypass bridge, (off of Granby Street in Hertford), which in his opinion, would likely reduce much of the traffic currently using the Hertford Marina boat ramp.

Mailing Survey

A total of 12 responses were received (Appendix B). The following is a summary of the responses received from the boat survey questionnaire.

- One question raised; If the bridge opened from a bobtail pivot with only one opening, what would be the required the horizontal clearance of the opening for the channel?

Since the existing bridge provide a horizontal clearance of 55' at the north opening and 60' at the south opening, and the existing US 17 fixed bridge provides for a horizontal clearance of 55', then the subject bridge would be required to provide a horizontal clearance of 55.' To be more restrictive would require a significant amount of justification.

- The Town of Herford indicated that maintain docks at their public docking facility, and they desire to have the same vertical and horizontal clearances as US 17 Bypass bridge. They also indicated they operate a vessel for emergency operations which is 80' in length with a 32' beam, and which has a draft of 7.' They desire to have 13' of navigable water depth.
- All of the remaining respondents indicated that they operation small recreational vessels which range from 19' to 30', of which one was a 30' houseboat.
- One respondent commented, that the water depth on the City side of the US 17 bridge had some very shallow areas.

This comment can be explored during final design which may be addressed in the form to include minor dredging or additional aids to navigation.

- One respondent suggested that a fixed span with a 15'-20' vertical clearance be considered.

This suggestion conflicts with the existing transient boat traffic which utilizes the City of Hertford's public docking facility.

- One respondent suggested moving the proposed bridge alignment to Edenton Road St.

- One respondent suggested that the old bridge be utilized for fishing and wildlife viewing, and that portions of the structure should be utilized as an artificial fish structure within the river.
- One respondent suggested that the waterway east of the subject bridge be regulated as a No Wake Zone until the green channel marker.

4.0 SUMMARY AND CONCLUSION

The subject bridge being replaced is a swing bridge that has a horizontal clearance of 55' at the north opening and 60' at the south opening. The vertical clearance is 7' in the closed position at mean high water, and it is unlimited in the open position. The US 17 Bypass fixed bridge, located approximately 0.7 miles seaward (east) of the subject bridge, is the limiting restriction on the waterway for the study area. This fixed bridge has a horizontal clearance of 55',a vertical clearance of 33', and a water depth of 9'. Since the subject bridge is being replaced with another swing bridge, (see Appendix F), then no vessels will lose access to the study due to vertical clearance requirements. Raising the bridge an additional 5' thus providing more vertical clearance would reduce the frequency of required bridge openings. While the US 17 Bypass bridge is more restrictive (55') than the subject bridge relative to horizontal clearance, consideration should be given to maintain at least one 60' horizontal clearance at the subject bridge, (preferably the south opening).

While both proposed bridge openings provide adequate water depth for the existing and anticipated vessel traffic, consideration should be given to post information signs at the bridge, directing vessels requiring deep water to the south bridge opening. Additional aids to navigation should be considered during the design and permitting of the bridge.

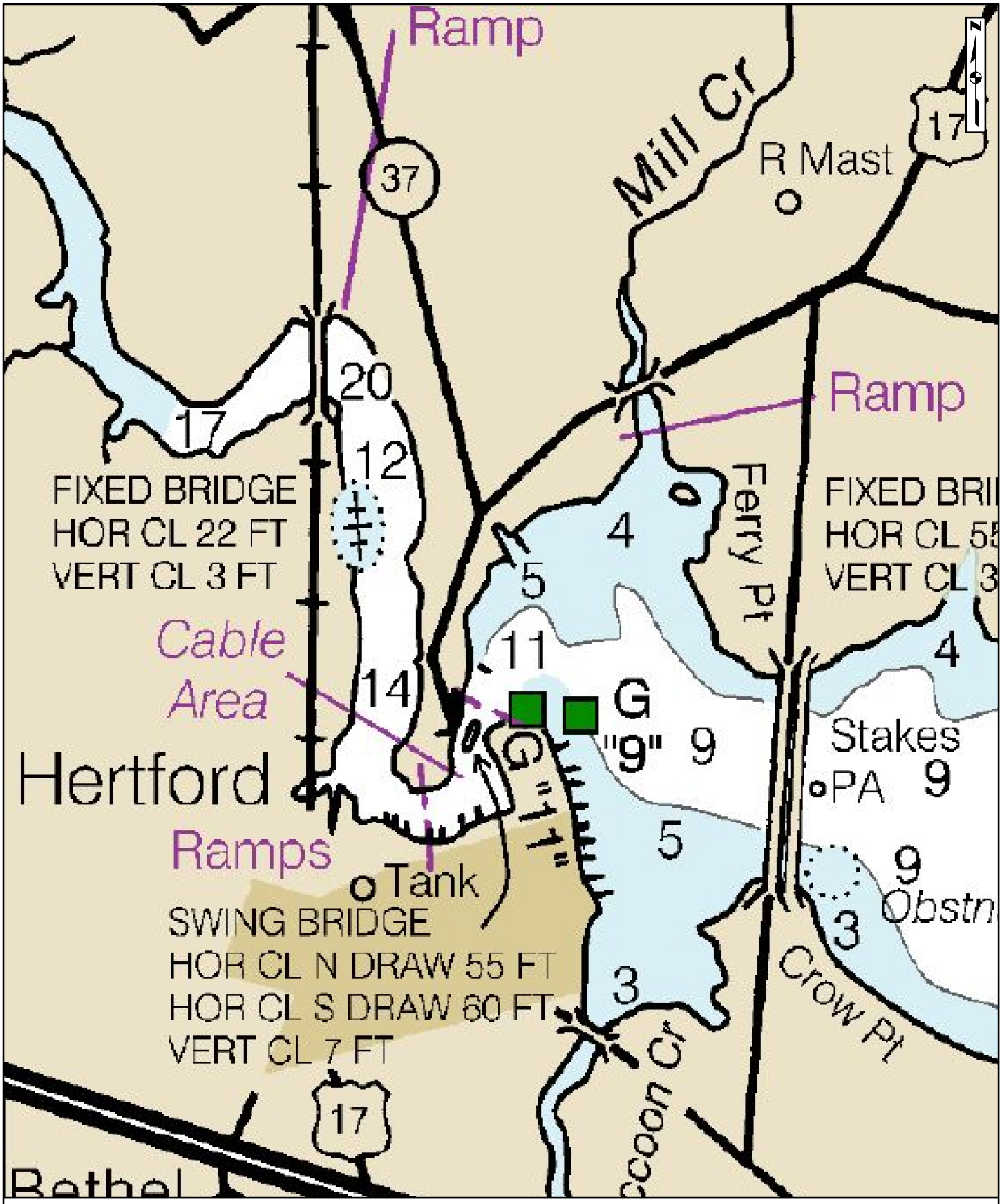


Figure 1
Location Map
R-4467 - US 17 Business from South of the Perquimans River Bridge to NC 37
Hertford and Winfall, Perquimans County

Figure 2
Aerial of Study Area
R-4467 - US 17 Business from South of the Perquimans River Bridge to NC 37
Hertford and Winfall, Perquimans County

TIP Project R-4467

Railroad

N

0 250 500 750 1,000 Feet

Figure 2A
Aerial of Study Area
R-4467 - US 17 Business from South of the Perquimans River Bridge to NC 37
Hertford and Winfall, Perquimans County

TIP Project R-4467

Railroad

Feet

0 250 500 750 1,000

Figure 2B
Aerial of Study Area
R-4467 - US 17 Business from South of the Perquimans River Bridge to NC 37
Hertford and Winfall, Perquimans County

TIP Project R-4467
Railroad
Perquimans County Parcels
Mailed Survey Parcels
Feet
0 500 1,000

Figure 3
Waterfront Properties for Mailed Survey
R-4467 - US 17 Business from South of the Perquimans River Bridge to NC 37
Hertford and Winfall, Perquimans County

APPENDIX A

Survey Questionnaire

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

March 20, 2017

Dear Stakeholder:

The North Carolina Department of Transportation (NCDOT) proposes to replace the Perquimans River Bridge on US 17 Business (Church Street) in Hertford and improve the causeway from the bridge to the NC 37 intersection (Project R-4467). As part of this work, NCDOT is coordinating with the US Coast Guard relative to navigation needs on the river in the project area, which could be affected by the US 17 Business swing-span bridge replacement.

Currently, the existing swing-span bridge has a horizontal clearance of 55 feet at the north opening and 60 feet at the south opening. The vertical clearance is seven feet in the closed position and unlimited in the open position. To the east, the existing US 17 fixed bridge is located approximately 0.7 miles seaward (east) of the subject bridge. This fixed bridge has a horizontal clearance of 55 feet and a vertical clearance of 33 feet.

The existing swing-span bridge is proposed to be replaced with another swing-span bridge, providing for approximately five feet more vertical clearance in the closed position than the existing bridge. The new bridge is proposed be located parallel to the existing bridge, just to the east. (See the attached graphic.)

While the project is in this planning and preliminary design phase, NCDOT is seeking for mariners and affected waterfront property owners to fill out the attached survey and/or provide comments on their navigational concerns relative to this proposed bridge replacement. Comments will be received until April 28th.

Thank you for your interest and participation.

Sincerely,

James McInnis, Jr., P.E.
Project Engineer

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH, NC 27699-1548

Telephone: (919) 707-6200
Fax: (919) 250-4036
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:

_____

_____

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

PLEASURE COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? _____

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

MOTOR SAIL FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH_____BEAM_____DRAFT_____TONNAGE_____

HORSEPOWER_____

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: _____ HORIZONTALCLEARANCE: _____

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY

NAVIGATE? _____

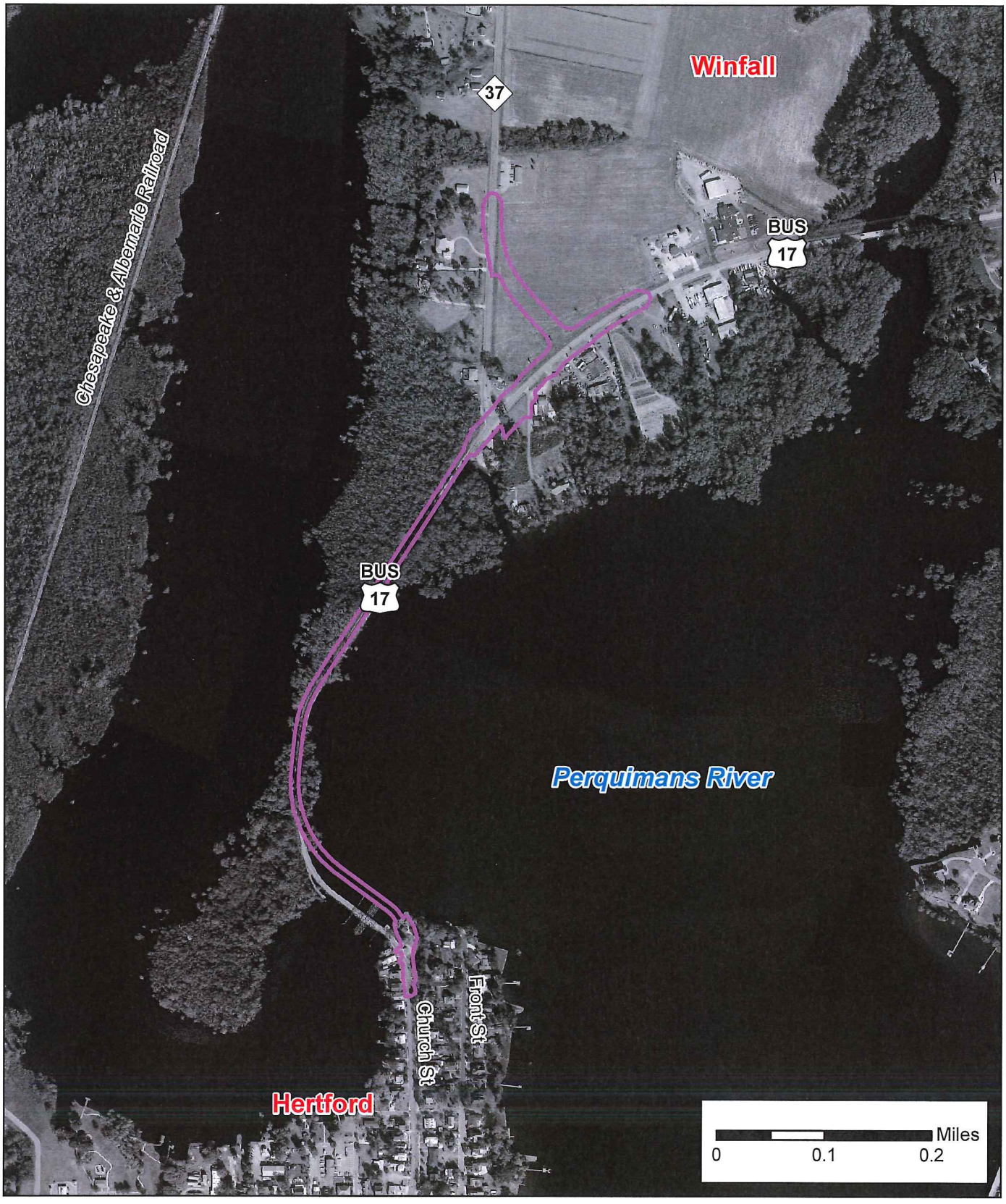
WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY YEAR-ROUND DAY NIGHT

TIMES OF DAY USED MOST:_____

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

N

Alternative B Alignment

Preferred Alternative Alignment (Alternative B Swing-Span)

R-4467 - US 17 Business from South of the Perquimans River Bridge to NC 37 Hertford and Winfall, Perquimans County

APPENDIX B

Survey Responses

postmarked 3/27/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:
Town of Hertford PO Box 32 Hertford, NC 27944

(252) 426-1969 x 9

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) (COMMERCIAL) LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? Em. Operations

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) (SAIL) (FISHING) FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 80' BEAM 32' DRAFT 7' TONNAGE N/A

HORSEPOWER _____

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 17 ft. HORIZONTALCLEARANCE: 20 ft.

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 13 ft.

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) (DAY) (NIGHT)

TIMES OF DAY USED MOST: Daylight

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

The town maintains docks near this project & wants the same availability w/ a new facility as we have now.

Vertical clearance is controlled by 17 bypass bridge.

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

postmarked 3/27/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:

ROBERT E. LANE, 358 WINFALL BLVD, HERTFORD NC 27944

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? NO

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) SAIL FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 20'/2 BEAM 8 DRAFT 18 TONNAGE 3800#

HORSEPOWER 200

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: Bimini up - 8 feet down 6 feet HORIZONTAL CLEARANCE: 8

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 4'

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) DAY NIGHT

TIMES OF DAY USED MOST: Day light

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

Postmarked 3/29/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:
Garry P. Copeland
P.O. Box 37 Belvidere, NC 27919 (757) 353-9808

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? NO

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) SAIL FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 22' BEAM 8' DRAFT 1.0' TONNAGE 3

HORSEPOWER 140

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 7' HORIZONTALCLEARANCE: 1

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 4'

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

(SEASONALLY) YEAR-ROUND DAY NIGHT

TIMES OF DAY USED MOST: 8:00 am – 8:00 pm

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

It would be great if the channel out to the US 17 bridge was widened - very shallow near town side.

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

postmarked 3/30/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER: STEVE MCDONALD 7708431491 (M)

344 WINFALL BLVD HERTFORD N.C 2524090203 (H)

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? No

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) SAIL (FISHING) FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 21 BEAM 8 DRAFT 18 TONNAGE 2

HORSEPOWER 200

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 15 HORIZONTALCLEARANCE: 10

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 30 INCHES

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) ~~DAY~~ (NIGHT)

TIMES OF DAY USED MOST: < 8AM > 5 PM

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

A FIXED SPAN WITH A 15-20 Vertical Clearance Along the Same Proposed footprint of the Proposed Swing bridge would be something to consider.

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

postmarked 3/31/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER: Martin Kent Sawyer
116 Howell St.
Hertford, NC 27944
252-312-9236

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? No

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

MOTOR SAIL (FISHING) FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 18.5 BEAM 8' DRAFT 3' TONNAGE 5000 lbs

HORSEPOWER 150 Honda

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet) 10'

VERTICAL CLEARANCE: 10' HORIZONTALCLEARANCE: 10'

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 6'

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) DAY NIGHT

TIMES OF DAY USED MOST: Different

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

Look like you could have included a self addressed envelope.

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

Postmarked 4/4/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:
H. B. Matthews, 322 N Front St., Hertford, NC 27944

phone 919-618-2308

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? _____

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) SAIL FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 18 BEAM 6 DRAFT 2 TONNAGE _____

HORSEPOWER 90

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 6 HORIZONTALCLEARANCE: 6

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 3 ft

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) DAY NIGHT

TIMES OF DAY USED MOST: P M

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

I would rather see the bridge go into Edenton Rd. St.

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

postmarked 4/7/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER: Rufus (Tim) & Kim Brinn (Tim) 7037748641

210 N. Front St, Hertford, NC 27944

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWAY IN THE PROJECT AREA? NO

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) SAIL FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 30' BEAM 8 1/2' DRAFT 2' TONNAGE 2 (HOUSEBOAT)

HORSEPOWER 115

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 12' HORIZONTAL CLEARANCE: windage on houseboat 30' actual boat is 8 1/2' wide

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 4 feet (mean low water)

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) DAY NIGHT

TIMES OF DAY USED MOST: 8AM - 8PM

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

(1) Consider use of old bridge as fishing/ nature viewing areas at either end of bridge. (State of Maryland has done a really good job of this with a number of old bridges).

(2) Consider use of old bridge pieces as artificial fish structure within the Pasquinsins River.

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

postmarked 4/7/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:
Lynwood C. Winslow III

1209 Belvidere Rd, Belvidere, NC 27919 252-297-6532

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? No

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) SAIL FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 22' BEAM 8' DRAFT 2' TONNAGE 2 tons

HORSEPOWER 140

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 8' HORIZONTALCLEARANCE: 18'

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 4'

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) DAY NIGHT

TIMES OF DAY USED MOST: All

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

postmarked 4/10/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER: Sara E. Winslow

102 Phelps Street, Hertford, NC 27944

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? No

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) SAIL FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER Canoe

VESSEL DIMENSIONS:

LENGTH 19' BEAM 7'6" DRAFT 18" TONNAGE _____

HORSEPOWER 115

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 5 ft HORIZONTALCLEARANCE: _____

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 3'

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) (DAY) (NIGHT)

TIMES OF DAY USED MOST: 8Am - 8 Pm

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

The US 17 Bypass bridges restrict the height of vessels that can currently reach the S Bridge or Alt. B bridge.

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

postmarked 4/8/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:
FRANK A. JAKUC 401 N. CHURCH STREET
HERTFORD, NC 27944 252 426 5246

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL (LICENSED) (UNLICENSED)

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? _____

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) (SAIL) FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER CANOE, KAYAK, JON. BOAT

VESSEL DIMENSIONS:

LENGTH 19 BEAM 8 DRAFT 2 TONNAGE 1.5

HORSEPOWER 150

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 5FT HORIZONTALCLEARANCE: 7

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 3FOOT

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

(SEASONALLY) (YEAR-ROUND) (DAY) (NIGHT)

TIMES OF DAY USED MOST: DAYTIME 8AM-4PM

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

TO BE FINANCIALLY RESPONSIBLE, PLEASE DELAY ANY ACTION ON THIS BRIDGE UNTIL I-87 PATH IS UNDERSTOOD.

MAKE WATERWAY TO THE EAST OF THE BRIDGE A NO WAKE ZONE UNTIL GREEN NAVIGATION SIGN.

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

postmarked 4/12/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:
CARLTON A. DAVENPORT, JR.
P.O. BOX 187, HERTFORD, NC 27944
252-426-5503

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? NO

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

MOTOR (SAIL) FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 22 BEAM 6 DRAFT 4' TONNAGE _____

HORSEPOWER 6 HP OUTBOARD

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 30' HORIZONTAL CLEARANCE: 7'

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 5'

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

SEASONALLY (YEAR-ROUND) DAY NIGHT

TIMES OF DAY USED MOST: 0600 - 1900

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

Postmarked 4/12/17

PERQUIMANS RIVER
PROJECT R-4467
NAVIGATION SURVEY

USER INFORMATION:

NAME, ADDRESS & PHONE NUMBER:
William T. Winslow 252-426-8520

307 North Church St., Hertford, NC 27944

WHAT TYPE OF WATERWAY USER ARE YOU: (please circle all that apply)

(PLEASURE) COMMERCIAL LICENSED UNLICENSED

ARE YOU INVOLVED IN EMERGENCY OPERATIONS, NATIONAL DEFENSE, OR CHANNEL MAINTENANCE ON THE WATERWARY IN THE PROJECT AREA? NO

VESSEL INFORMATION:

TYPE VESSEL: (Please circle all that apply)

(MOTOR) SAIL FISHING FERRY TUG/BARGE PILOT DEEP DRAFT

OTHER _____

VESSEL DIMENSIONS:

LENGTH 18' BEAM 8' DRAFT 2' TONNAGE 1/2 Ton

HORSEPOWER 140

BRIDGE CLEARANCE REQUIREMENTS FOR VESSEL: (measured in feet)

VERTICAL CLEARANCE: 6' HORIZONTALCLEARANCE: 8'

WATERWAY INFORMATION:

WHAT IS THE MINIMUM DESIRED WATER DEPTH DO YOU REQUIRE TO SAFELY NAVIGATE? 3'

WHEN DO YOU TRANSIT THESE WATERWAYS? (Please Circle all that apply)

(SEASONALLY) YEAR-ROUND DAY NIGHT

TIMES OF DAY USED MOST: 8:00 AM - 5:00 P.M

COMMENTS:

PLEASE USE THIS SPACE TO COMMENT ON ANY NAVIGATION RELATED ISSUES REGARDING THIS WATERWAY NOT COVERED IN THIS SURVEY. PLEASE BE SPECIFIC WITH RESPECT TO ACTUAL NAVIGATIONAL NEEDS AND REQUIREMENTS. PLEASE ATTACH SKETCHES OR ANY ADDITIONAL INFORMATION NECESSARY TO HELP US FULLY UNDERSTAND THE ISSUE. COMMENTS MUST BE RECEIVED BY APRIL 28, 2017:

None

MAIL TO:

Teresa Gresham
Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601

APPENDIX C

Zoning Maps

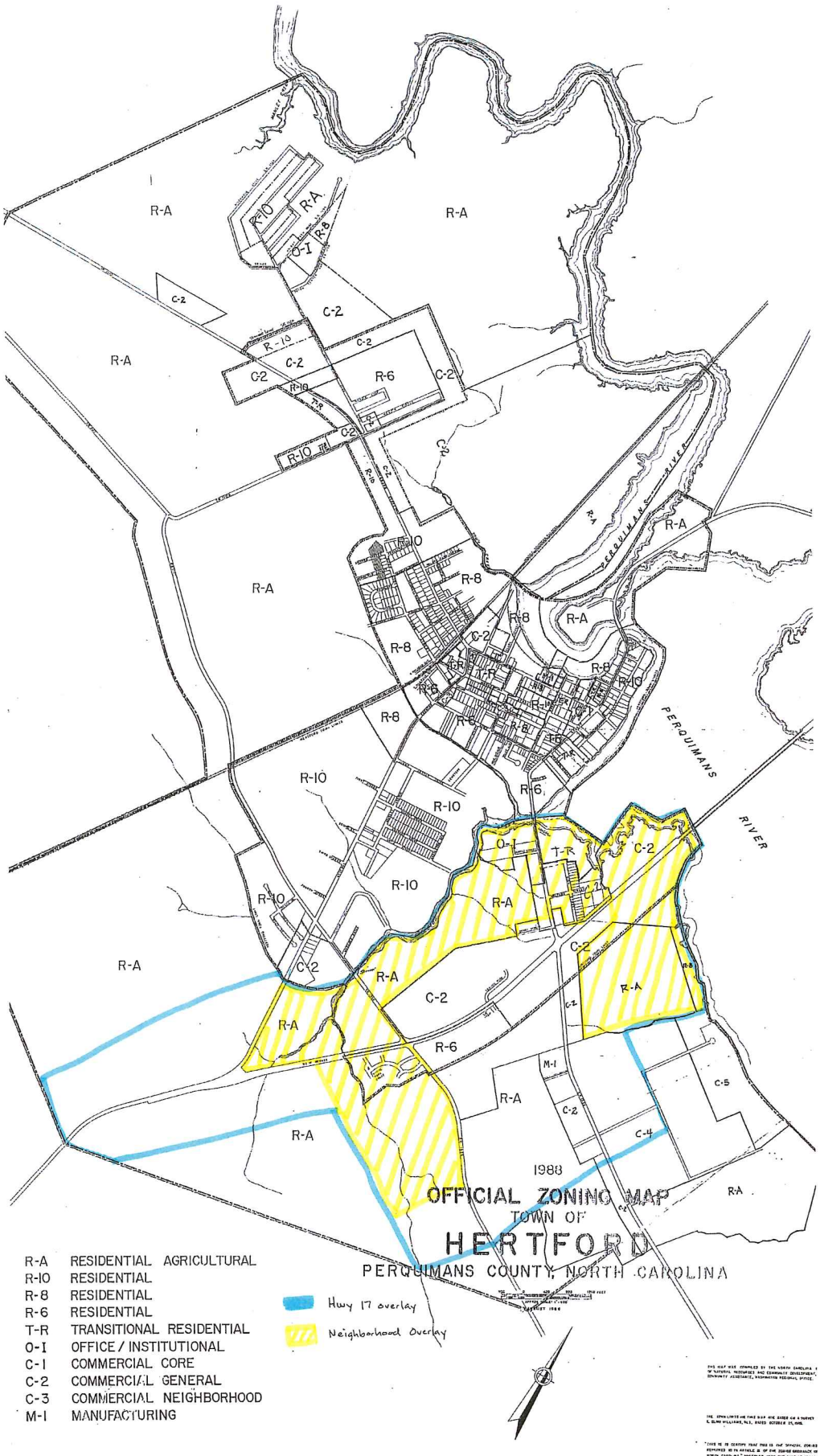
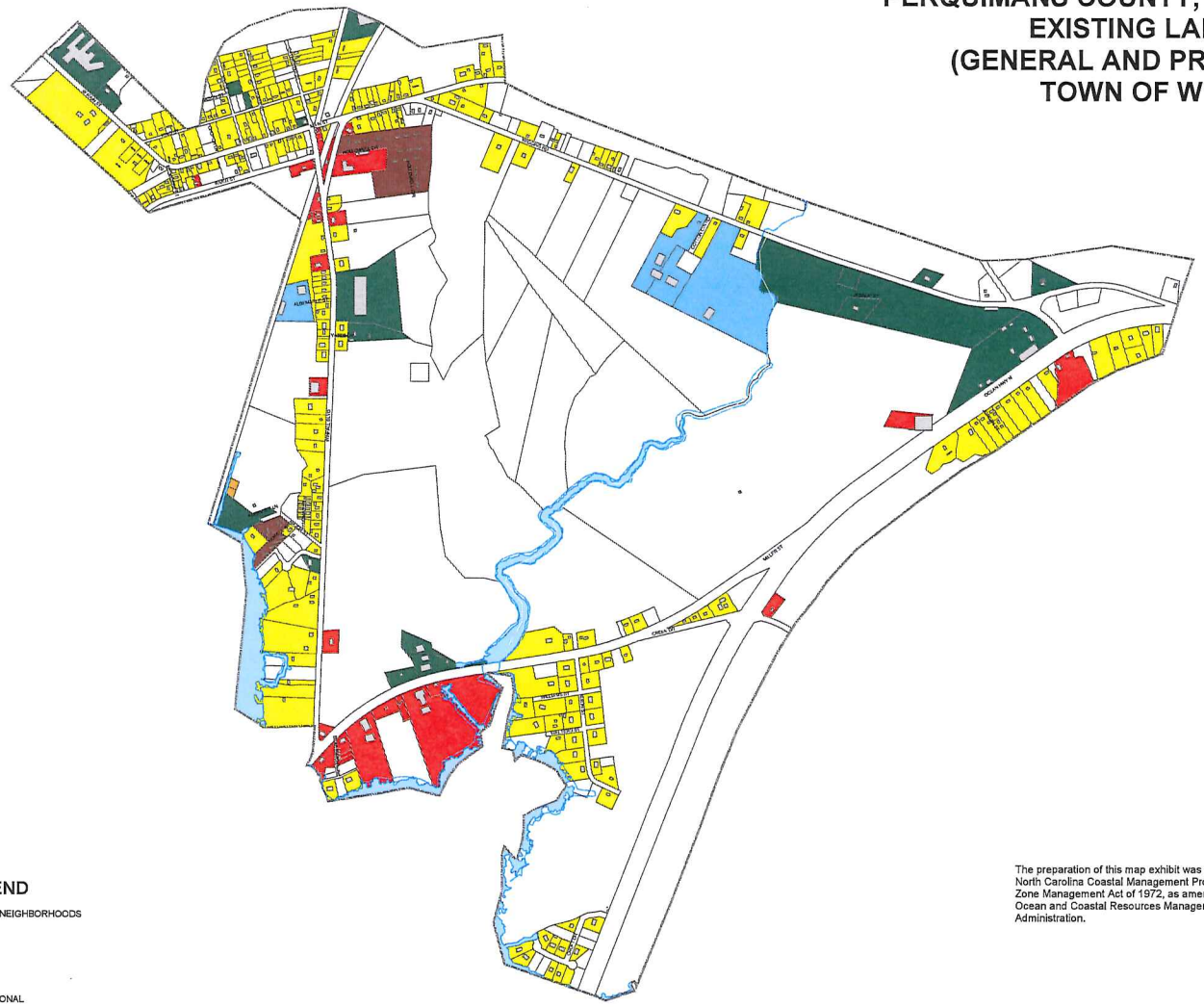

1988
OFFICIAL ZONING MAP
TOWN OF
HERTFORD
PERQUIMANS COUNTY, NORTH CAROLINA
R-A RESIDENTIAL AGRICULTURAL
R-10 RESIDENTIAL
R-8 RESIDENTIAL
R-6 RESIDENTIAL
T-R TRANSITIONAL RESIDENTIAL
O-I OFFICE / INSTITUTIONAL
C-1 COMMERCIAL CORE
C-2 COMMERCIAL GENERAL
C-3 COMMERCIAL NEIGHBORHOOD
M-1 MANUFACTURING
Hwy 17 overlay
Neighborhood Overlay
PERQUIMANS RIVER

EXHIBIT V-D
PERQUIMANS COUNTY, NORTH CAROLINA
EXISTING LAND USE
(GENERAL AND PREDOMINANT)
TOWN OF WINFALL

N

600 300 0 600 1,200 1,800
Feet



EXISTING LAND USE LEGEND

- SUBDIVIDED SINGLE FAMILY RESIDENTIAL/NEIGHBORHOODS
- MULTI-FAMILY RESIDENTIAL
- MOBILE/MANUFACTURED HOME PARKS
- INDUSTRIAL
- COMMERCIAL
- PUBLIC/SEMI-PUBLIC/RELIGIOUS/INSTITUTIONAL
- VACANT/OPEN SPACE/FOREST/AGRICULTURE

The preparation of this map exhibit was financed in part through a grant provided by the North Carolina Coastal Management Program, through funds provided by the Coastal Zone Management Act of 1972, as amended, which is administered by the Office of Ocean and Coastal Resources Management, National Oceanic and Atmospheric Administration.

Community Planning Collaborative, Inc.
1121 Cordova Court Virginia Beach, Virginia 23456

REVISED: JUNE 1, 2006

File: \\Server\LAN\Projects\2006 PROJECTS\05-006-01 Perquimans County Future Zoning Maps\GIS\revised_may-1-2006_COMP-PLAN\EU-WINFALL.mxd

APPENDIX D

Bridge Tender Logs

Town of Hertford - Chruch Street Swing Bridge Bridge Open Log Summary Dates: January 2016 to January 2017														
Vessel Type	January	February	March	April	May	June	July	August	September	October	November	December	January	Total by Vessel Type
Cabin	1	2			1		2	2						8
T-Top	2		2	10	4	7	14	8	7	2	6	4		66
Cabin Cruiser		1	2	1	2	2			1	1				10
House Boat			1				1				1	1		4
Yacht			2	1	2	2	4	6	12	2				31
Cruiser						4	2	1	3		1			11
Center Console					6	4	3	1	1	2				17
Sailboat					1		2			1				4
Pontoon					4	2	4		3	3				16
Walk - Thru					1		1							2
Racing Boat						3			2					5
Marine Fisher						2			2					4
Parker						1								1
Tri-Hull							2							2
Tug Boat							2	2				4	3	11
Commercial							2			3				5
Barge									2			1		3
Ski-Boat									2	2				4
Commercial Fish									4					4
Fish Boat									6					6
Total by Month	3	3	7	12	21	27	39	20	45	16	8	10	3	

Jan '16 – Jan '17

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 1 OF 2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF January 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
1-23-16	10:00 AM	10:03 AM	10:06 AM	CABIN	(COMM) DAVID SPAFFORD	10:10 AM	10:00	20	IN	SLEET	NO	W.C. Cartwright
1-31-16	1440	1443	1446	T-TOP	NC 5227 EC	1450	10:00	16	OUT	SUNNY	NO	W.C. Cartwright
1-31-16	1520	1523	1526	T-TOP	NC 5227 EC	1530	10:00	17	IN	SUNNY	NO	W.C. Cartwright

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder. noise in operation of bridge mechanism ampere fluctuation. unusual occurrence. etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 1 OF 1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF FEBRUARY 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
2-7-16	1000	1003	1006	CABIN	BOBBY WHITE	1010	10:00	12	OUT	CLOUDY	NO	W.C.
2-7-16	1405	1408	1411	CABIN	BOBBY WHITE	1415	10:00	24	IN	RAIN	NO	W.C.

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 1 OF 1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF March 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
2/4-16	1005	1008	1009	Cabin Cruiser	NC 3014 WH	1012	1000	23	OUT	Clear	NO	Phyllis Winborne
3/17/16	1010	1003	1006	Cabin Cruiser	NC 9882 WH Had NO boat no.	1010	1000	26	OUT	Clear	NO	Phyllis Winborne
3/17/16	1708	1711	1714	House Boat	Blue Devil	1718	1000	47	OUT	Clear	NO	Phyllis Winborne
3/17/16	1742	1745	1748	Cabin Cruiser	NC 9882 WH	1752	1000	28	IN	Clear	NO	Phyllis Winborne
3/28-16	1445	1448	1451	YACHT	NC 9143	1455	10:00	29	IN	CLOUDY	NO	W.C. Cartwright
3-29-16	1005	1008	1011	YACHT	NC 9143	1015	10:00	13	OUT	CLOUDY	NO	W.C. Cartwright
3-28-16	1725	1728	1731	T. TOP	N/A	1735	10:00	51	OUT	Sunny	NO	T. Stanton
3-28-16	1905	1908	1912	T. TOP	N/A	1915	10:00	47	IN	Sunny	NO	T. Stanton

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder. noise in operation of bridge mechanism ampere fluctuation. unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. I OF I

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF April 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
4-4-16	1845	1848	1852	T. Top	N-A	1855	10:00	42	IN	Sunny	NO.	T. Stanton
4-22-16	1540	1548	1552	Cabin Cruiser	EVENING STAR	1558	1000	46	IN	Rain	NO	Phyllis Winborne
4-24-16	1030	1033	1036	T-TOP	NC 2810	1040	10:10	25	OUT	CLEAR	NO	W.C. Winborne
4-24-16	1130	1133	1136	YACHT	EVENING STAR	1140	10:00	19	OUT	CLEAR	NO	W.C. Winborne
4-24-16	1440	1443	1446	T-TOP	NC 2810	1450	10:00	24	IN	CLEAR	NO	W.C. Winborne
4-25-16	1415	1418	1421	T. TOP	NC 4176	1425	10:00	40	OUT	Sunny	NO	T. Stanton
4-25-16	1530	1533	1536	T. TOP	MAY CRAFT	1540	10:00	32	OUT	Sunny	NO	T. Stanton
4-25-16	1650	1653	1656	T. TOP	MAY CRAFT	1600	10:00	42	IN	Sunny	NO	T. Stanton
4-26-16	1645	1653	1656	T. TOP	May Craft	1600	10:00	28	Out	Sunny	NO	P. Winborne
4-26-16	1740	1743	1746	T. TOP	May Craft	1749	1000	55	IN	Sunny	NO	P. Winborne
4-27-16	1500	1503	1506	T. TOP	MAY CRAFT	1510	10:00	52	OUT	Sunny	NO	T. Stanton
4-27-16	1645	1648	1651	T. TOP	May Craft	1650	10:00	38	IN	Sunny	NO	T. Stanton

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

AB

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 1 OF 1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF MAY 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
5-8-16	1430	1433	1436	CENT. CONS.	NC 7959 EC	1440	10:00	32	OUT	CLOUDY	NO	W.C. Carlton
5-8-16	1620	1623	1626	CENT. CONS.	NC 7959 EC	1630	10:00	15	IN	CLOUDY	NO	W.C. Carlton
5-9-16	1645	1648	1651	CENT CONS	NC 7959 EC	1655	10:00	36	OUT	FAIR	NO	T. Stanton
5-9-16	1900	1903	1906	CENT CONS	NC 7959 EC	1910	10:00	20	IN	FAIR	NO	T. Stanton
5-11-16	1100	1103	1106	CABIN CRUISER	NC 8345 DS	1110	10:00	30	OUT	Sunny	NO	T. Stanton
5-11-16	1115	1118	1121	SAIL BOAT	N/A	1125	10:00	28	OUT	Sunny	NO	T. Stanton
5-14-16	1010	1013	1016	CENT. CONS.	MARGARITA	1020	10:00	16	OUT	SUNNY	NO	W.C. Carlton
5-14-16	1110	1113	1116	YACHT	995415	1120	10:00	11	IN	SUNNY	NO	W.C. Carlton
5-14-16	1145	1148	1151	CENT. CONS.	MARGARITA	1155	10:00	27	IN	SUNNY	NO	W.C. Carlton
5-15-16	815	818	821	YACHT	SLOWMOCEAN	825	10:00	10	OUT	SUNNY	NO	W.C. Carlton
5-17-16	1540	1543	1546	Cabin Cruiser	Didn't know no	1548	10:00	20	Out	Rainy	NO	P Winborne
5-20-16	0945	0948	0951	PONTOON	BLUE DEVIL	0955	10.00	26	IN	Sunny	NO	T. Stanton
5-20-16	1438	1441	1444	Pontoon	Blue Devil	1449	1000	49	Out	Cloudy	NO	P Winborne
5-23-16	0945	0948	0951	CABIN BOAT	PARKER	0955	1000	40	IN	CLOUDY	NO	T Stanton
5-26-16	1355	1358	1401	T-Top	NC 8525 DR	1404	1000	48	IN	Sunny	NO	P Winborne
5-26-16	1515	1518	1501	T-TOP	NC 3298	1504	1000	15	OUT	Sunny	NO	P Winborne
5-26-16	1916	1919	1902	T-Top	NC 3298	1905	1000	23	IN	Sunny	NO	P Winborne
5-27-16	0800	0803	0806	PONTOON	BLUE DEVIL	0810	10.00	36	IN	Sunny	NO	T. Stanton
5-27-16	1401	1404	1407	Pontoon	Blue Devil	1412	1000	32	OUT	Sunny	NO	P Winborne
5-29-16	905	908	911	WALK-THRU	NC 8807 WW	915	10:00	11	IN	DRIZZLE	NO	W.C. Carlton
5-30-16	1330	1333	1336	T-TOP	NC 8522 DA	1340	10:00	36	OUT	DRIZZLE	NO	T. Stanton

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SCANNED 7/11/16

SHEET NO. I OF R

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF JUNE 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
6-1-16	1100	1103	1106	PARKER	N/A	1110	10:00	36	OUT	Cloudy	NO T.	Stanton
6-4-16	1705	1708	1711	CENT. CONS.	NC3111WS	1715	10:00	30	IN	DRIZZLE	NO W.C.	Cartwright
6-5-16	845	848	851	CENT. CONS.	NC0369EP	855	10:00	11	OUT	CLOUDY	NO W.C.	Cartwright
6-5-16	1110	1113	1116	CENT. CONS.	NC0369EO	1120	10:00	15	IN	CLOUDY	NO W.C.	Cartwright
6-5-16	1320	1323	1326	RACING BOAT	NC4362WR	1330	10:00	29	OUT	CLOUDY	NO W.C.	Cartwright
6-5-16	1545	1548	1551	RACING BOAT	NC4362WR	1555	10:00	10	IN	CLOUDY	NO W.C.	Cartwright
6-5-16	1615	1618	1621	RACING BOAT	NC5898RO	1625	10:00	14	IN	CLOUDY	NO W.C.	Cartwright
6-8-16	1345	1348	1351	MARINE FISH	PARKER	1355	10:00	41	IN	SUNNY	NO T.	Stanton
6-8-16	1520	1523	1526	MARINE FISH	PARKER	1530	10:00	61	OUT	Sunny	NO T.	Stanton
6-10-16	0805	0808	0811	T TOP	NC6048BG	0816	10:00	45	OUT	Sunny	NO PL	Winborne
6-10-16	1111	1114	1117	T TOP	NC6048BG	1121	10:00	30	IN	Sunny	NO PL	Winborne
6-14-16	1815	1818	1821	T TOP	NC7959EC	1823	10:00	26	OUT	Sunny	NO PL	Winborne
6-14-16	1910	1913	1916	T TOP	NC7959EC	1920	10:00	23	IN	Cloudy	NO Phyllis	Winborne
6-16-16	1525	1528	1531	T TOP	NC5053CT	1535	10:00	25	OUT	Sunny	NO PL	Winborne
6-22-16	1715	1718	1721	CABIN CRUISE	NO HURRY	1725	10:00	35	IN	Sunny	NO T.	Stanton
6-24-16	0810	0813	0816	Cabin Cruiser	NO HURRY	0820	10:00	33	OUT	CLOUDY	NO T.	Stanton
6-26-16	1020	1023	1026	PONTOON	BLUE DEVIL	1030	10:00	17	IN	SUNNY	NO W.C.	Cartwright
6-26-16	1245	1248	1251	T-TOP	NC9823CB	1255	10:00	14	OUT	SUNNY	NO W.C.	Cartwright
6-26-16	1335	1338	1341	CENT. CONS.	NC9284DN	1345	10:00	24	OUT	SUNNY	NO W.C.	Cartwright
6-26-16	1405	1408	1411	PONTOON	BLUE DEVIL	1415	10:00	9	OUT	SUNNY	NO W.C.	Cartwright
6-26-16	1810	1813	1816	T-TOP	NC9823CB	1820	10:00	11	IN	SUNNY	NO W.C.	Cartwright
6-29-16	1230	1233	1236	YACHT	VENTURE	1240	10:00	39	IN	Sunny	NO T.	Stanton

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF JUNE 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
6-29-16	1420	1423	1426	Cruiser	NC-8348-DS	1430	10:00	36	IN	Sunny	NO	T. Stanton
6-29-16	1525	1528	1531	Cruiser	NC-8348 05	1535	10:00	41	OUT	Sunny	NO	T. Stanton
6-30-16	0820	0823	0826	Yacht	Venture	0827	10:00	32	Out	Sunny	NO	PL Winborne
6-30-16	1221	1225	1228	Cruiser	Daddy Girl	1232	1000	33	Out	Cloudy	NO	PL Winborne
6-30-16	1350	1354	1357	Cruiser	Daddy Girl	1401	1000	44	In	Cloudy	NO	PL Winborne

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

8/2/16

SHEET NO. 1 OF 2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF JULY 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
7-1-16	1935	1938	1941	HOUSEBOAT	NC 5466	1945	10:00	15	OUT	SUNNY	NO	W.C. Cartwright
7-2-16	1305	1308	1311	T-TOP	NC 2810	1315	10:00	26	OUT	CLOUDY	NO	W.C. Cartwright
7-2-16	1630	1633	1636	T-TOP	NC8663P	1640	10:00	27	OUT	SUNNY	NO	W.C. Cartwright
7-2-16	1650	1653	1656	T-TOP	NC9696AK	1700	10:00	22	OUT	SUNNY	NO	W.C. Cartwright
7-2-16	1740	1743	1746	T-TOP	NC2810	1750	10:00	17	IN	CLOUDY	NO	W.C. Cartwright
7-2-16	1810	1813	1816	T-TOP	NC8663P	1820	10:00	19	IN	CLOUDY	NO	W.C. Cartwright
7-2-16	1835	1838	1841	T-TOP	MARINE FISHERIES	1845	10:00	15	OUT	CLOUDY	NO	W.C. Cartwright
7-2-16	1855	1858	1901	CABIN	NC 1751 CJ	1905	10:00	21	OUT	CLOUDY	NO	W.C. Cartwright
7-2-16	1920	1923	1926	PONTOON	BLUE DEVIL	1930	10:00	11	IN	CLOUDY	NO	W.C. Cartwright
7-2-16	2010	2013	2016	CABIN	NC 1751 CJ	2020	10:00	24	IN	CLOUDY	NO	W.C. Cartwright
7-2-16	2030	2033	2036	T-TOP	NC 3708 WY	2040	10:00	23	IN	CLOUDY	NO	W.C. Cartwright
7-2-16	2045	2048	2051	WALK-THRU	NC9696AK	2055	10:00	28	IN	NIGHT	NO	W.C. Cartwright
7-2-16	2130	2133	2136	T-TOP	NC3708WY	2140	10:00	32	OUT	CLEAR NIGHT	NO	W.C. Cartwright
7-2-16	2145	2148	2151	PONTOON	BLUE DEVIL	2155	10:00	12	OUT	CLEAR NIGHT	NO	W.C. Cartwright
7-3-16	1030	1033	1036	CENT. CONS.	NC9696AK	1040	10:00	6	IN	RAIN	NO	W.C. Cartwright
7-3-16	1325	1328	1331	CENT. CONS.	NC8642WF	1335	10:00	13	OUT	CLOUDY	NO	W.C. Cartwright
7-3-16	1505	1508	1511	T-TOP	NC8522DR	1515	10:00	18	IN	CLOUDY	NO	W.C. Cartwright
7-3-16	1845	1848	1851	CENT. CONS.	NC8642WF	1855	10:00	10	IN	CLOUDY	NO	W.C. Cartwright
7-4-16	1120	1123	1126	Tri-Hull	VA3582BD	1130	10:00	23	IN	Cloudy	NO	T. Stanton
7-4-16	1200	1203	1206	Tri-Hull	VA3582BD	1210	10:00	17	OUT	Cloudy	NO	T. Stanton
7-4-16	1230	1231	1233	T-TOP	TIDEWATER	1240	10:00	19	OUT	RAINY	NO	T. Stanton
7-4-16	1545	1548	1551	PONTOON	NC 5466EA	1555	10:00	28	IN	Sunny	NO	T. Stanton

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF JULY 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
7-4-16	1730	1733	1736	T.Top	TIDEWATER	1740	10:00	18	IN	Sunny	NO	T. Stanton
7-4-16	1800	1803	1806	PONTOON	N/A	1810	10:00	15	OUT	Sunny	NO	T. Stanton
7-5-16	1045	1048	1051	T Top	8522 DR	1055	1000	25	Out	Sunny	NO	PW Winborne
7-5-16	1946	1949	1952	Yatch	Polly P	1956	1000	22	In	Dright	NO	PW Winborne
7-6-16	0805	0808	0811	yatch	Polly P	0815	10:00	32	Out	Sunny	NO	T. Stanton
7-10-16	1645	1648	1651	YACHT	ERNBA28B303	1655	10:00	18	IN	SUNNY	NO	W.C. Cathey
7-10-16	1750	1753	1756	YACHT	ERNBA28B303	1800	10:00	26	OUT	SUNNY	NO	W.C. Cathey
7-11-16	0900	0903	0906	TUG BOAT	LITTLE SAM	0910	10:00	33	IN	P.Sunny	NO	T. Stanton
7-11-16	1010	1013	1016	TUG BOAT	LITTLE SAM	1020	10.00	32	OUT	P.Sunny	NO	T. Stanton
7-13-16	1410	1413	1416	CRUISER	NC 3959 EA	1420	10:00	51	IN	Sunny	NO	T. Stanton
7-13-16	1520	1523	1526	CRUISER	NC 3959 EA	1530	10:00	46	OUT	Sunny	NO	T. Stanton
7-20-16	0846	0848	0851	T.TOP	NC. 2698 DR	0855	10:00	22	OUT	Sunny	NO	T. Stanton
7-20-16	1100	1103	1106	SAIL BOAT	NC-8517 DJ	1110	10:00	19	IN	Sunny	NO	T. Stanton
7-20-16	1135	1138	1141	SAIL BOAT	NC-8517 DJ	1145	10:00	23	OUT	Sunny	NO	T. Stanton
7-20-16	1330	1333	1336	T.TOP	NC-2698 DR	1340	10:00	32	IN	Sunny	NO	T. Stanton
7-31-16	1430	1433	1436	COMMERCIAL	NC 4848 WG	1440	10:00	16	IN	CLOUDY	NO	W.C. Cathey
7-31-16	1520	1523	1526	COMMERCIAL	NC 4848 WG	1530	10:00	13	OUT	CLOUDY	NO	W.C. Cathey

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder. noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 1 OF 1

SCANNED 9/1/16

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF Aug 1 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
8-1-16	1414	1416	1419	Yatch	Tenn6356EC	1429	10.00	47	IN	Cloudy	NO	PLWinborne
8-2-16	0815	0818	0821	YATCH	TENN6356EC	0825	10:00	16	OUT	Sunny	NO	T. Stanton
8-2-16	1244	1247	1250	T. TOPMM	"PARKER"	1244	10:00	20	IN	Cloudy	NO	T. Stanton
8-2-16	1530	1533	1536	T.TOP	"PARKER"	1540	10:00	31	OUT	RAIN	NO	T. Stanton
8-3-16	0900	0903	0906	T.TOPMM	"PARKER"	0910	10:00	25	OUT	Sunny	NO	T. Stanton
8-3-16	1305	1308	1311	T.TOP. MM	PARKER	1315	10:00	40	IN	Sunny	NO	T. Stanton
8-2-16	1410	1413	1416	T-TOP	NC 9823	1420	10:00	21	OUT	SUNNY	NO	W.C. Carlton
8-7-16	1700	1703	1706	T-TOP	NC 9823	1710	10:00	12	IN	CLOUDY	NO	W.C. Carlton
8-19-06	0830	0833	0836	TUG	LITTLE SAM	0840	10:00	15	IN	Sunny	NO	T. Stanton
8-19-06	0900	0903	0906	TUG	LITTLE SAM	0910	10:00	27	OUT	Sunny	NO	T. Stanton
8-15-06	1945	1948	1951	YATCH	VAGABOND	1955	10:00	31	IN	Sunny	BRIDGE WIDNTOPEN DUE TO HEAVY GUNS CLOSE	T. Stanton
8-16-06	0815	0818	0821	Yatch	Vaga Bond	0825	10:00	36	Out	Sunny	NO	PL Winborne
8-19-06	0900	0903	0906	CRUISER	NC 8348	0910	10:00	25	OUT	CLOUDY	NO	T. Stanton
8-20-16	0850	0853	0856	CABIN	SB 250 RESCUE	0900	10:00	14	OUT	SUNNY	NO	W.C. Carlton
8-20-16	1020	1023	1026	CABIN	SB250 RESCUE	1030	10:00	20	IN	CLOUDY	NO	W.C. Carlton
8-20-16	1200	1203	1206	CENT. CONS.	NC3685CK	1210	10:00	16	IN	CLOUDY	NO	W.C. Carlton
8-23-16	0900	0903	0906	T.TOP	PARKER	0910	10:00	31	OUT	Sunny	NO	T. Stanton
8-23 16	0915	0918	0921	T.TOP	PARKER	0925	10:00	15	IN	Sunny	NO	T. Stanton
8-28-16	0810	0813	0816	YACHT	SL8889RA	0820	10:00	9	IN	SUNNY	NO	W.C. Carlton
8-30-16	0830	0833	0836	Yacht	SL8889RA	0840	10:00	36	Out	Sunny	NO	PL Winborne

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Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF Sept-1-2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
9-1-16	1040	1043	1046	Cabin Cruiser	NC 8348DS	1050	10:00	24	IN	Sunny	No PW	Winborne
9-4-16	1630	1633	1636	T-TOP	NC 4897 AY	1640	10:00	16	OUT	SUNNY	NO WC	Cubert
9-5-16	0915	0918	0921	BARGE	NC-5301 WU	0925	10:00	15	IN	Cloudy	NO	T. Starter
9-5-16	1010	1013	1016	BARGE	NC-5301 WU	1020	10:00	22	OUT	Cloudy	NO	T. Starter
9-5-16	1030	1033	1036	T.TOP	TROPHY	1040	10:00	18	OUT	Sunny	NO	T. Starter
9-5-16	1230	1233	1236	T.TOP	TROPHY	1240	10:00	32	IN	Sunny	NO	T. Starter
9-5-16	1545	1548	1551	Comm FISH	PARKER	1555	10:00	36	OUT	Sunny	NO	T. Starter
9-5-16	1610	1613	1616	Comm FISH	PARKER	1620	10:00	35	IN	Sunny	NO	T. Starter
9-6-16	0835	0838	0841	Fish boat	NC 3685 CK	0845	10:00	22	OUT	Sunny	NO	PW Winborne
9-6-16	1101	1104	1107	T Top	NC 6909 WW	1111	10:00	28	Out	Sunny	NO	PW Winborne
9-6-16	1150	1153	1156	Fish boat	NC 3685 CK	1200	10:00	24	IN	Sunny	NO	PW Winborne
9-6-16	1351	1354	1357	Fish boat	NC 3685 CK	1401	10:00	32	OUT	Sunny	NO	PW Winborne
9-6-16	1525	1528	1531	Fish boat	NC 3685 CK	1435	10:00	52	IN	Sunny	NO	PW Winborne
9-7-16	0800	0803	0806	Comm FISH	PARKER	0810	10:00	38	OUT	Sunny	NO	T. Starter
9-7-16	1150	1153	1156	Comm FISH	PARKER	12:06	10:00	41	IN	Cloudy	NO	T. Starter
9-7-16	1420	1423	1426	MARINE FISH	PARKER	14:30	10:00	40	OUT	Cloudy	NO	T. Starter
9-7-16	1600	1603	1606	MARINE FISH	PARKER	1610	10:00	35	IN	Cloudy	NO	T. Starter
9-8-16	0811	0814	0817	Fish boat	NC 3685 CK	0821	10:00	48	OUT	Rain	NO	PW Winborne
9-8-16	1009	1012	1015	Fish boat	NC 3685 CK	1019	10:00	33	IN	Rain	NO	PW Winborne
9-8-16	1240	1243	1246	T Top	NC 2800 WD	1250	10:00	28	Out	Cloudy	NO	PW Winborne
9-8-16	1345	1348	1351	T Top	NC 2800 WD	1355	10:00	36	IN	Sunny	NO	PW Winborne
9-8-16	1445	1448	1451	Patoon	NC 8658 DG	1455	10:00	60	OUT	Sunny	NO	PW Winborne

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PEROUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF Sept 1, 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
9-8-16	1520	1523	1526	Yacht	Catalina	1530	10:00	38	IN	Sunny	NO	PLWinborne
9-8-16	1539	1542	1546	Yacht	DeDe Mouse	1550	10:00	48	IN	Sunny	NO	PLWinborne
9-10-16	0935	0938	0941	YACHT	CATALINA	0945	10:00	22	OUT	CLOUDY	NO	W.C. Carter
9-10-16	0950	0953	0956	YACHT	CATALINA	1000	10:00	21	IN	CLOUDY	NO	W.C. Carter
9-10-16	1205	1208	1211	YACHT	CATALINA	1215	10:00	27	OUT	SUNNY	NO	W.C. Carter
9-10-16	1300	1303	1306	YACHT	DIDI-MAU	1310	10:00	24	OUT	SUNNY	NO	W.C. Carter
9-11-16	1310	1313	1316	CENT. CONS.	NC 2800 WD	1320	10:00	16	IN	SUNNY	NO	W.C. Carter
9-12-16	1105	1108	1111	CRUISER	NC 8348 DS	1115	10:00	36	OUT	CLOUDY	NO	T. Starto
9-20-16	1043	1046	1049	Yacht	C Duck II	1053	10:00	32	IN	Cloudy	NO	PLWinborne
9-2016	1053	1056	1059	Yacht	MarthaJean	1100	10:00	32	IN	Cloudy	NO	PLWinborne
9-20-16	1250	1253	1256	Yacht	Red Sky	1300	10:00	28	IN	Cloudy	NO	PLWinborne
9-23-16	0800	0803	0806	Yacht	C-Duck II	0812	12:00	36	OUT	Cloudy	NO	T. Starto
9-23-16	0800	0803	0806	Yacht	MARTH JEAN	0812	12:00	36	OUT	CLOUDY	NO	T. Starto
9-23-16	0800	0803	0806	Yacht	RED SKY	0812	12:00	36	OUT	CLOUDY	NO	T. Starto
9-24-16	1045	1048	1051	SKI-BOAT	NC 1799 EC	1055	10:00	24	OUT	SUNNY	NO	W.C. Carter
9-24-16	1500	1503	1506	SKI-BOAT	NC 1799 EC	1510	10:00	18	IN	SUNNY	NO	W.C. Carter
9-25-16	1245	1248	1251	RACE BOAT	BAD INVESTMENT	1255	10:00	12	OUT	CLOUDY	NO	W.C. Carter
9-25-16	1540	1543	1546	PONTOON	NC 9252 EC	1550	10:00	23	OUT	CLOUDY	NO	W.C. Carter
9-25-16	1720	1723	1726	RACE BOAT	BAD INVESTMENT	1730	10:00	17	IN	CLOUDY	NO	W.C. Carter
9-25-16	1740	1743	1746	PONTOON	NC 9252 EC	1750	10:00	14	IN	CLOUDY	NO	W.C. Carter
9-26-16	1025	1028	1031	CRUISER	NC-8348-DS	1035	10:00	35	IN	Sunny	NO	T. Starto
9-26-16	1100	1103	1106	T TOP	NC-5053	1110	10:00	26	IN	Sunny	NO	T. Starto

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 3 OF 3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF September

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
9-26-16	1140	1143	1146	CRUISER	NC-8348-DS	1150	10:00	38	OUT	Cloudy	NO T.	Stalo

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder. noise in operation of bridge mechanism ampere fluctuation. unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 1 OF 1

SCANNED 11/3/16

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF OCTOBER 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
10-2-16	1030	1033	1036	COMMERCIAL	NC 6683 AV	1040	10:00	16	IN	SUNNY	NO	W.C. Carlwright
10-2-16	1330	1333	1336	COMMERCIAL	NC 6730 BH	1340	10:00	11	IN	SUNNY	NO	W.C. Carlwright
10-2-16	1520	1523	1526	SKI-BOAT	NC 8742 DZ	1530	10:00	17	OUT	SUNNY	NO	W.C. Carlwright
10-2-16	1625	1628	1631	SKI-BOAT	NC 8742 DZ	1635	10:00	19	IN	CLOUDY	NO	W.C. Carlwright
10-3-16	1620	1623	1626	PONTOON	NC. 8658 DG	1630	10:00	35	IN	CLOUDY	NO	T. Stanton
10-4-16	0955	0958	1001	Commercial	Unknown	1005	10:00	15	IN	Cloudy	NO	Pl Winborne
10-4-16	1244	1247	1300	T Top	NC 8907 T	1304	1000	13	IN	Cloudy	NO	Pl Winborne
10-4-16	1318	1321	1324	T Top	NC 8907 T	1325	10:00	46	OUT	Cloudy	NO	Pl Winborne
10-4-16	1318	1321	1324	T Top	NC 8907 T	1325	10:00	32	IN	Sunny	NO	T. Stanton
10-12-16	1225	1228	1231	SAILBOAT	NC 8517 DJ	1235	10:00	32	OUT	SUNNY	NO	W.C. Carlwright
10-15-16	1510	1513	1516	CENT. CONS.	NC 0589 BS	1520	10:00	22	OUT	DUSK	NO	W.C. Carlwright
10-15-16	1830	1833	1836	CENT. CONS.	NC 0589 BS	1840	10:00	19	IN	SUNNY	NO	W.C. Carlwright
10-21-16	1140	1143	1146	PONTOON	BLUE DEVIL	1150	10:00	28	IN	SUNNY	NO	W.C. Carlwright
10-21-16	1340	1343	1346	PONTOON	BLUE DEVIL	1350	10:00	17	OUT	SUNNY	NO	W.C. Carlwright
10-25-16	1226	1229	1232	Cabin Cruiser	NC 8348 DS	1236	10:00	29	OUT	Sunny	NO	Pl Winborne
10-29-16	1535	1538	1541	YACHT	NANCY LEE	1540	10:00	26	IN	SUNNY	NO	W.C. Carlwright
10-31-16	1530	1533	1536	Yacht	Nancy Lee	1540	10:00	44	Out	Sunny	NO	Pl Winborne

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF December - 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
11-6-16	1645	1648	1651	HOUSE BOAT	BY-GORGE	1655	10:00	17	OUT	SUNNY	NO	W.C. Cartwright
11-9-16	10:05	10:08	10:11	CRUISER	NC-8348-DS	10:15	10:00	25	IN	CLOUDY	NO	T. Hunter
11-11-16	1210	1213	1216	T-TOP	NC 4154 WO	1220	10:00	27	OUT	SUNNY	NO	W.C. Carter
11-11-16	1420	1423	1426	T-TOP	NC 4154 WO	1430	10:00	23	IN	SUNNY	NO	W.C. Carter
11-13-16	1445	1448	1451	T-TOP	WY 9495	1455	10:00	17	OUT	SUNNY	NO	W.C. Carter
11-13-16	1640	1643	1646	T-TOP	WY 9495	1650	10:00	19	IN	SUNNY	NO	W.C. Carter
11-25-16	1235	1238	1241	T-TOP	NC 2810	1245	10:00	20	OUT	CLOUDY	NO	W.C. Cartwright
11-25-16	1710	1713	1716	T-TOP	NC 2810	1720	10:00	16	IN	CLOUDY	NO	W.C. Cartwright

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 1 OF 1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF December 2016

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
12-18-16	1430	1433	1436	HOUSEBOAT	NC 5466 EA	1440	10:00	26	IN	CLOUDY	NO	W.C. Cutlip
12-21-16	1030	1033	1036	T-TOP	NC 2810	1040	10:00	16	OUT	Sunny	NO	T. Stanton
12-21-16	1500	1503	1506	T-TOP	NC 2810	1510	10:00	28	IN	Sunny	NO	T. Stanton
12-29-16	10:30	10:33	10:36	Barge	Unknown	1040	10:00	35	Out	Cloudy	NO	P. Sinborne
12-29-16	1505	1508	1511	Tug Boat	Unknown	1515	10:00	34	IN	Cloudy	NO	P. Sinborne
12-29-16	1522	1525	1528	Tug Boat	Unknown	1532	10:00	39	OUT	Cloudy	NO	P. Sinborne
12-29-16	1601	1604	1608	Tug Boat	Unknown	1612	10:00	48	IN	Cloudy	Someone hit stop rail	P. Sinborne
12-29-16	1635	1638	1642	Tug Boat	Unknown	1646	10:00	31	OUT	Sunny	NO	P. Sinborne
12-31-16	1040	1043	1046	T-TOP	NC 2810	1050	10:00	14	OUT	SUNNY	NO	W.C. Cutlip
12-31-16	1345	1348	1351	T-TOP	NC 2810	1355	10:00	12	IN	CLOUDY	NO	W.C. Cutlip

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

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Legend for completing Equipment Problem Column

G	Gate	NB	North Bridge
T	Trip Breaker	SB	South Bridge
BRN	Bridge Noise	FS	Far Span
		NS	Near Span

SHEET NO. 1 OF 1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
BRIDGE OVER PERQUIMANS RIVER AT HERTFORD ROUTE US 017
REPORT OF DRAW OPENINGS FOR MONTH OF JANUARY 2017

Date	Time Vessel Signaled	Time Gates Closed	Draw Fully Open	Kind of Vessel	Name or Number of Vessel	Time Gates Are Opened	Delay Due to Bridge Opening	No. of Vehicles Delayed	Remarks	Weather When Boat was Passing Through	Equipment Problems	Name of Operator
1-3-17	1415	1418	1421	Tug Boat	Unknown	1425	10:00	33	IN	Cloudy	NO	PL Winborne
1-3-17	1442	1445	1448	Tug Boat	Unknown	1452	10:00	57	Out	Cloudy	NO	PL Winborne
1-6-17	1130	1133	1136	TUG BOAT	CMS-3	1140	10:00	39	IN	CLOUDY	NO	W.C. Outland

NOTE: All draw bridges are to be opened at least once a week. The machinery, gates, etc. especially gears and bearings, are to be inspected at least once a week and are to be kept thoroughly lubricated. Reports are to be sent immediately after the last day of each month to the District Engineer. An accident or serious damage to the fender system, the bridge or machinery, is to be reported at once by telephone or telegram to the District Engineer. A report of an accident or damage is to be made on regular form and forward immediately. In the column above (Equipment Problems) on this sheet note any unusual disorder, noise in operation of bridge mechanism ampere fluctuation, unusual occurrence, etc. Particular attention is to be paid to all navigation and warning lights which are to be kept in first class condition at all times.

APPENDIX E

Responses to Questions Presented in the USCG Appendix A of the Bridge Permit Application Guide (Sections B-D and F-I)

B. Present governing bridge(s) or aerial structure(s) on the waterway:

1. Identify all bridges upstream and downstream of the proposed bridge site and their existing horizontal and vertical clearances to determine the existing minimum horizontal and vertical clearances (including overhead transmission line clearances). **See Figures 1 and 2.**

	Horizontal Clearance	**Vertical Clearance**
The US 17 fixed bridge, 0.7 miles downstream.	**55'**	**33'**
Fixed Railroad bridge, upstream	**22'**	**3'**

2. Does the proposed bridge(s) match (or is greater than) the navigational clearance of existing structures on the waterway?

Yes, in the open position, and the proposed clearance in the closed position will be 5 feet higher than the existing bridge being replaced.

3. What is the most restrictive horizontal clearance on the waterway?

The two bridges identified in question 1 are the most restrictive.

a. Milepoint:
The US 17 fixed bridge is located at mile 11.3 on the Perquimans River, and the fixed railroad bridge is located at mile 13.39.

b. Horizontal clearance: **22' upstream and 55' downstream**

4. What is the most restrictive vertical clearance on the waterway?

The two bridges identified in question 1 are the most restrictive.

a. Milepoint: **Same as response to question 3a above.**

b. Vertical clearance: **3' upstream and 33' downstream**

5. Will the proposed bridge(s) become the most restrictive/obstructive structure across the waterway? **No.**

C. Waterway characteristics:

1. Various waterway stages:

The NOAA Nautical Chart 12205, 35th Ed., Feb 2017, indicates that the low water datum in the sound is reported to be 0.5' below mean sea level. Tide range is 0.5' or less. Water elevation is effected more by flood flow and wind setup. The FEMA base flood elevation is 6' NAVD 88. The high water surface elevation for the bridge is reported to be 0.56' NAVD 88, and the low water surface elevation is reported to be 0.36' NAVD.

2. Natural flow of the waterway including currents, waterway velocity, water direction, and velocity fluctuations (seasonal, daily, hourly, etc.), that might affect navigation.

While the waterbody is tidal, the waterway can be characterized as only having a flood flow, downstream to sea. No recorded information has been found relative to current or flow velocity of the water. However, based upon interviews with a bridge tender and local marine contractor familiar with the project area, the daily current does not significantly affect navigation.

3. Width of the waterway at bridge site: **360 feet**

4. Depth of the waterway and elevation fluctuations at bridge site: [List the depth at each waterway bridge stage (ex. Range of tides, average high water elevation, etc.)].

Tide range is reported to be less than 0.5.' The limiting water depth in the channel at the bridge is approximately 20.5' at low water. The approximate average water depth in the study area is 11' to 14' at low water, with the controlling water depth being approximately 9' at low water, at the US-17 Bypass bridge. (Low Water Datum is 0.5' below mean sea level).

	Elevation	**Water Depth**
Low Water	**0.36'**	**20.5'**
High Water	**0.56'**	**20.7**

5. Waterway layout and geometry: **The waterway at the location of the bridge turns on either side of the bridge in the form of an "S", with the bridge being in the center of the "S." The distance for alignment of the approach to the bridge is approximately 660 feet on either side of the bridge.**

6. Channel and waterway alignment: **The channels are 95' to 180' from the eastern shoreline. The proposed bridge replacement will be located along the same alignment as the existing.**

7. Other limiting factors: **As described in response #5, bends occur on each side of the bridge, approximately 1200' from the existing bridge. No other limiting factors are known.**

D. Do vessels that engage in emergency operations (i.e., law enforcement, fire, rescue, emergency dam repair, etc.), national defense activities (i.e. cruisers, fuel barges, munitions ships, etc.) or channel maintenance (i.e., dredges, dam and levee repair, etc.) operate on the waterway?

No vessels that engage in emergency operations or national defense are known to operate within the study area, other than a emergency vessel as reported by the Town of Hertford (80' in length, with a 32' beam, and a draft of 7'). Support vessels and small barges do operate within the study area to provide maintenance and construction for docks, seawalls and maintenance to the existing bridges.

1. Does levee maintenance, bridge work (other bridges), channel maintenance and emergency operations upstream of bridge require certain vessels to transit the waterway? **Yes, vessels utilizing small barges may be required in the future to perform maintenance on the upstream fixed, railroad bridge.**

2. Does the proposed bridge(s) impact USCG and/or other government vessels' ability to transit the bridge(s) to conduct mission essential functions (icebreakers, patrols, etc.)? **No.**

3. Vessels using the waterway during the proposed bridge(s) lifespan (should include): **Unknown; A survey was mailed to all waterfront property owners in the study area, as well as to all of the marinas on the Albemarle Loop. Notice was also provided in the local newspaper, and public workshops have been conducted regarding the proposed bridge replacement.**

a. Vessel name;

b. Registration/documentation numbers;

c. Vessel type;

d. Vessel owner contact information (company/individual name, address, contact info.);

e. Primary vessel mooring location (include waterway milepoint, if known);

f. Vessel overall length;

g. Vessel beam;

h. Vessel draft (depth of hull below waterline at full load);

i. Vessel air draft (height of the highest fixed point of the vessel above the waterline, when empty);

j. Specialized vessels that use the waterway (e.g. vessels which have limited maneuverability due to inherent design or mode of operation);

k. Safety margin required by vessel to navigate through the bridge(s);

l. Vessel transit frequencies under proposed bridge(s), transit speeds, and load configurations; and

m. Vessel traffic characteristics (to include if tug assist is required for transit through the bridge(s) due to limited horizontal clearance).

4. Will the proposed bridge(s) provide the horizontal and vertical clearances for the safe, efficient passage of the largest of these vessels? Why? **Yes, the proposed bridge will not be any more restrictive than what currently exists.**

5. If no, estimate the number of vessels in each of the above categories unable to pass through the proposed bridge(s). Give the name, length overall (LOA), beam, draft and height of highest fixed point above the waterline for vessels affected by the bridge(s). **N/A**

6. Can these vessels be modified (i.e., folding mast, relocation or equipment, etc.) without decreasing their respective response times? If so, name the vessels. **N/A**

7. If modifications are feasible, state the name of the vessel(s), their trip frequency, the necessary modifications, the cost of the modification(s) and who will pay for them (i.e., vessel owner, applicant, other). **N/A**

8. Provide any additional information concerning the potentially impacted or burdened users of the waterway as well as the future use of the waterway. **None.**

F. Describe the present and prospective recreational navigation: Will the proposed bridge(s) affect the safe, efficient movement of any segment of the present or prospective recreational fleet operation on the waterway? If yes, provide the following information:

Recognizing that most of the waterfront in the study area is private single family residential, the majority of the vessels on the waterway are recreational vessels (powerboats), 40 feet in length and under. The proposed bridge replacement will not affect the safe, efficient movement, (present or prospective), or operation of vessels on the waterway. The proposed swing bridge will be constructed along the same alignment as the existing. It will have the same horizontal clearances, and it will provide for an additional 5 feet of vertical clearance in the closed position. A survey was mailed to all waterfront property owners in the study area, as well as to all of the marinas on the Albemarle Loop. Notice was also provided in the local newspaper, and public workshops have been conducted regarding the proposed bridge replacement.

1. Vessels utilizing the waterway during the proposed bridge(s) lifespan. (Information in

this bullet should include:)

a. Vessel name;

b. Registration/documentation numbers;

c. Vessel type;

d. Vessel owner contact information (company/individual name, address, contact info.);

e. Primary vessel mooring location (include waterway milepoint, if known);

f. Vessel overall length;

g. Vessel beam;

h. Vessel draft (depth of hull below waterline at full load);

i. Vessel air draft (height of the highest fixed point of the vessel above the waterline, when empty);

j. Specialized vessels that use the waterway (e.g., vessels which have limited maneuverability due to inherent design or mode of operation);

k. Safety margin required by vessel to navigate through the bridge(s);

l. Vessel transit frequencies under proposed bridge(s), transit speeds, and load configurations; and

m. Vessel traffic characteristics (to include if tug assist is required for transit through the bridge(s) due to limited horizontal clearance).

2. What is the estimated percentage of the recreational fleet, which may be affected by the proposed bridge(s)? **Approximately 85% of the vessels which operate with in the study area are recreational vessels. None, are expected to be adversely affected by the proposed bridge replacement.**

3. Will the proposed bridge(s) eliminate the access of these vessels to existing or planned commercial, water-oriented facilities (i.e., restaurants, shops, recreational areas, marinas, etc.) in the vicinity of the proposed bridge(s)? If yes, describe these facilities. **No.**

4. Is it feasible to modify the affected segments of the fleet to clear the proposed bridge(s) without substantially increasing operating costs? If yes, name the vessel(s), state the necessary modifications, cost of modifying each vessel and person or entity responsible for financing the modifications. **N/A**

5. Provide any additional information concerning the potentially impacted or burdened users of the waterway as well as the future use of the waterway.

The Town of Hertford has recently completed an 8 slip public docking facility adjacent to the Town's boat ramp. The Town provides overnight dockage for visitors, with the first 48 hours free of charge, including electricity and sanitary pump out. This facility provides services to vessels up to 50 feet in length.

No other multi-slip docking facility, marina marine commercial or marine industrial facility is located within the study area.

G. Describe the present and waterway and prospective commercial navigation and the cargoes moved on the waterway: Will the proposed bridge(s) affect the safe, efficient movement of any segment of the present or prospective commercial fleet operating on the waterway? If yes, provide the following information: **Based upon an interview with an owner's representative from Stokely-Holland Marine Construction, Hertford, NC (252-264-2090) and observations in the field, commercial vessels are limited to marine construction and commercial fishing.**

The commercial fishing vessels are generally under 35 feet in length and are trailered to the local boat ramps for launching. Many commercial fishing boats currently use the town's boat ramp to launch their boats. Many of the commercial fishing boats have large reels and net rigs on them that require opening the existing swing bridge

The remaining vessels marine contractors pushing small barges to local waterfront properties for various construction projects. Stokely-Holland Marine Construction indicated that the river current is manageable, with no real concerns for navigation.

Based upon an interview with a local bridge tender, there are no known occurances of collisions with the existing bridge. The proposed bridge replacement will not affect the safe, efficient movement of any segment of the present or prospective commercial fleet operating on the waterway in the study area.

A survey was mailed to all waterfront property owners in the study area, as well as to all of the marinas on the Albemarle Loop. Notice was also provided in the local newspaper, and public workshops have been conducted regarding the proposed bridge replacement.

1. Vessel name;

2. Registration/documentation numbers;

3. Vessel type;

4. Vessel owner contact information (company/individual name, address, contact info.);

5. Primary vessel mooring location (include waterway milepoint, if known); vessel overall length;

6. Vessel beam;

7. Vessel draft (depth of hull below waterline at full load);

8. Vessel air draft (height of the highest fixed point of the vessel above the waterline, when empty);

9. Specialized vessels that use the waterway (e.g. vessels which have limited maneuverability due to inherent design or mode of operation); **Marine contractor barges and tugs.**

10. Safety margin required by vessel to navigate through the bridge(s);

11. Vessel transit frequencies under proposed bridge(s), transit speeds, and load configurations; and

12. Vessel traffic characteristics (to include if tug assist is required for transit through the bridge(s) due to limited horizontal clearance).

13. Does the proposed bridge(s) impact existing and future cruise ship ports-of-call/terminals? **No**

14. Does the proposed bridge(s) impact ports supporting post-Panamax vessels? **No**

15. Does the proposed bridge(s) impact vessels that produce unique products for the region? **No**

16. Does the proposed bridge(s) impact vessels that require helper boats/tugs? **No**

17. Document annual cargo movements (cargo types and quantities); **None**

18. State the estimated percentage of the commercial fleet, which may be affected by the proposed bridge(s). **Approximately 15% of the vessels which operate in the study area are commercial Vessels.**

19. Will the proposed bridge(s) clearance impact present and/or prospective upstream commercial activity, e.g., jobs and economic growth and development? **No**

20. If yes, address any existing or planned commercial/industrial developments negatively affected by the proposed clearances and discuss the economic impacts the proposed clearances will have on these businesses: **The Town of Hertford has recently completed an 8 slip public docking facility adjacent to the Town's boat ramp. No other multi-slip docking facility, marina marine commercial or marine industrial facility is located within the study area.**

21. Document the foreseeable needs to future navigation; **No significant foreseeable changes are anticipated in the study area which would affect navigation requirements in the study area.**

22. Provide existing and historical navigational use and waterway conditions;

23. Provide input from waterway dependent facilities concerning future use; **None exist within the study area.**

24. Describe land use zoning along the waterway (particularly within the riparian zone); **The land use is generally single family residential properties. See Appendix B.**

25. Describe future vessel size and traffic trends; **No significant changes are anticipated in the study area due to the land use.**

26. Include input from states based on state development plans; **None**

27. Include input from facilities based on business plans; **None**

28. Document local commercial shipping and other businesses affected by this restriction. **None**

29. Is it feasible to modify the restricted vessels to clear the proposed bridge(s) without substantially increasing operating costs? If yes, name the vessel(s), state the necessary modifications, cost of modifying each vessel and company or entity responsible **N/A**

30. Provide any additional information concerning the potentially impacted or burdened users of the waterway as well as the future use of the waterway. **None**

H. Identify the name and contact information for marine facilities located within a 3-mile radius of the proposed project (public boat ramps, marinas or major docking facilities, boat repair facilities, etc.:

- **Timmy's Mobile Marine is marine repair facility at 160 Creek Dr. on the north shore of Perquimans River, between the existing swing bridge and the US 17 fixed bridge. This facility services small vessels with outboard motors. Mr. Dewald did not believe there were any significant navigation concerns with the existing or proposed bridge replacement.**

- **Perquimans ~ New Hope Boat Ramp**
  386 Boat Ramp Road
  Hertford, NC 27944
  GPS 36° 08'01.46" N 76° 19'10.71" W (Waters edge at ramp)

- **Hertford Marina**

- **Hertford Boat Ramp**
  Closest intersection is; North Church Street (Route 37) & Punch Alley
  Hertford, NC 27944
  GPS 36° 11'28.25" N 76° 27'59.35" W

There are no other local marine service facilities on the waterfront within a 3 mile radius of the proposed project.

I. Will the proposed bridge(s) block access of any vessel presently using local service facilities (i.e., repair shops, parts distributors, fuel stations)? If yes, provide the following information: **No, there are no local marine service facilities located upstream of the proposed bridge replacement, and there are no such facilities planned for, upstream of the proposed bridge replacement.**

1. Describe the facilities impacted and estimate the number of vessels currently using these facilities.

a. Vessel information should include the following for each blocked vessel:

1) Vessel name;

2) Registration/ documentation numbers;

3) Vessel type;

4) Vessel owner contact information (company/individual name, address, contact info);

5) Primary vessel mooring location (include waterway milepoint, if known); vessel overall length;

6) Vessel beam;

7) Vessel draft (depth of hull below waterline at full load); and

8) Vessel air draft (height of the highest fixed point of the vessel above the waterline, when empty);

2. Could any of these facilities be considered critical infrastructure, key resources, or important/unique U.S. industrial capability (i.e., are these facilities unique or one of only a few of the type in the area?) Address whether the proposed clearances negatively affect those facilities and their customers. **N/A**

3. What economic impact will loss of access have on these facilities? Include estimated dollar amount to support Commandant and DHS goals. **N/A**

4. What is the distance to alternate service facilities capable of servicing the affected vessels? Describe the facilities. **N/A**

5. Will use of these alternate facilities substantially increase vessel operation affected vessels? Describe the facilities. **N/A**

6. Is it feasible to modify the affected vessels to clear the proposed bridge(s)? **N/A**

7. If yes, state the name, necessary modifications, cost of modifying each vessel and who will pay for the modifications.

APPENDIX F

Current Preliminary Design Plans

PRELIMINARY DESIGN

PROJECT 35748.1.1 (R-4467)
F.A. Project BRNHS-0017(85)

PERQUIMANS COUNTY

US 17 BUSINESS
FROM CHURCH STREET TO NC 37

ALTERNATIVE B 15-FOOT SWING SPAN

ROLL 1 OF 1

DESIGN DATA US 17 BUSINESS
Crabb Street to Bridge
Functional Class. = Urban Collector
Design Speed = 45 mph
Max. Superelev. = 8.0%
Perquimans River Bridge
Functional Class. = Urban Collector
Design Speed = 40 mph
Max. Superelev. = 8.0%
Bridge to NC 37
Functional Class. = Urban Collector
Design Speed = 45 mph
Max. Superelev. = 8.0%

INCOMPLETE PLANS

HERTFORD TOWN LIMITS

HERTFORD TOWN LIMITS
NEW ALL TOWN LIMITS

HERTFORD HISTORIC DISTRICT

-ALT B-

ROADWAY TYPICAL SECTION NO. 1
US 17 BUS FROM CHURCH STREET TO BRIDGE

BRIDGE TYPICAL SECTION NO. 1
US 17 BUS OVER PERQUIMANS RIVER

-ALT B-

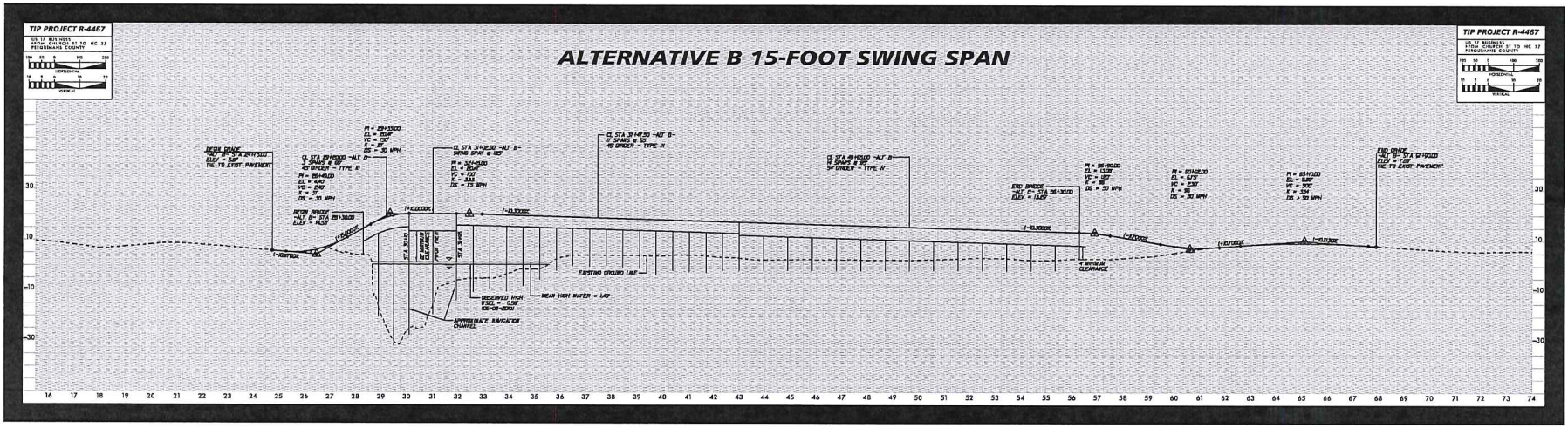
ROADWAY TYPICAL SECTION NO. 2
US 17 BUS FROM END BRIDGE TO STA 44+49

-ALT B- / -Y2-

ROADWAY TYPICAL SECTION NO. 3
US 17 BUS FROM STA 44+49 TO END OF PROJECT
NC 37 (WB-FAIL BUS)

Kimley»Horn

Kimley»Horn


TIP PROJECT R-4467
US 17 BUSINESS
FROM CHURCH ST TO NC 37
PERQUIMANS COUNTY
HORIZONTAL
VERTICAL
ALTERNATIVE B 15-FOOT SWING SPAN
TIP PROJECT R-4467
US 17 BUSINESS
FROM CHURCH ST TO NC 37
PERQUIMANS COUNTY
HORIZONTAL
VERTICAL
BEGIN BRIDGE
-ALT B- STA 24+77.500
ELEV = 5.89'
TIE TO EXIST. PAVEMENT
BEGIN BRIDGE
-ALT B- STA 28+30.00
ELEV = 4.62'
EXISTING GROUND LINE
MEAN HIGH WATER = 1.40'
APPROXIMATE NAVIGATION CHANNEL
END BRIDGE
-ALT B- STA 67+70.00
ELEV = 7.28'
TIE TO EXIST. PAVEMENT
END BRIDGE
-ALT B- STA 39+30.00
ELEV = 13.49'
30
10
-10
-30
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74